

Advanced Dish Development System

SYSTEM

MAJOR COMPONENTS

WGA-500 Concentrator

- WGAAssociates, Dallas, Texas

SOLO 161 Stirling PCU

- Solo Kleinmotoren, Germany

Collector Control System

- WGAAssociates, Dallas, Texas



Advanced Dish Development System **Mod 1 Design**

- Grid-connected system
- Fully integrated system designed, fabricated, installed and operated on sun in less than one year
- Concentrator performance exceeds specifications
- Maintainable, easy to work with system



Advanced Dish Development System

Mod 2 Design

- Designed for driving a water pump, a need identified by all of our Application Partners
- Primary objective is to reduce cost, especially related to installation at a remote location
 - "Bootstrap" installation of the system
 - "Cookbook Foundation" designs
 - Mounting of the Control Cabinet on the pedestal
 - Redesign of panel mounts
 - Change panel design from 16 panels x 2 rows (32 panels) to 24 panels x 1 row (24 panels)



Advanced Dish Development System

Mod 2 Concentrator Design

- Design addresses Mod 1 issues
- Kneel-down stow at 25° below the horizon
- Elevation-tracking range of 0° to 96°
- Redesign of Winsmith drive casting
- Panels use Al instead of steel membranes



Advanced Dish Development System

Mod 2 Design

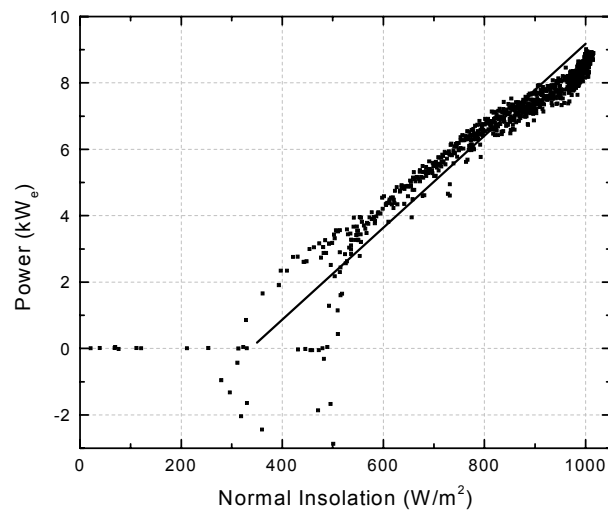
- Concentrator power management simplified
 - Uses two 12-Volt lead/acid batteries for concentrator drives and controls
 - 24-VDC drive motors
 - One 12-Volt battery in PCU for starting
 - One common charger from generator output



Advanced Dish Development System

Performance Status

- Mod 1 peak system efficiency is about 18% (net)
- Performance improvement planned





Nevada Solar Dish Project

Thomas R. Mancini

Solar PACES
June 20, 2001



Nevada Solar Dish Project

Project Goals

- Accelerate commercial readiness of dish systems
- Highlight Nevada's Solar resources

Approach

- Deploy 1 MW of solar dish systems near Las Vegas

Participants

- UNLV, DOE, SES, SAIC, NREL, Sandia





Project Schedule



FY01- First dishes installed and operated



- April 18 Project kickoff meeting at UNLV
- April 19 UNLV signs cooperative agreement
- May 2 Site selected for first two dishes at UNLV
- July/Aug Dedication of first two systems



FY02 - RFP issued; contractor(s) selected; installation started at Nevada location TBD

FY03 - 1.0 MW dish field completed

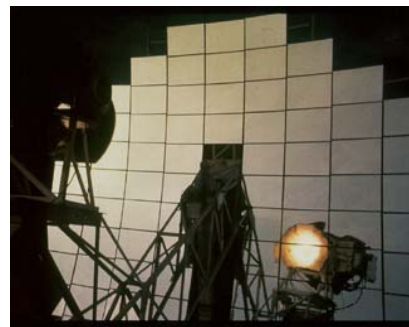
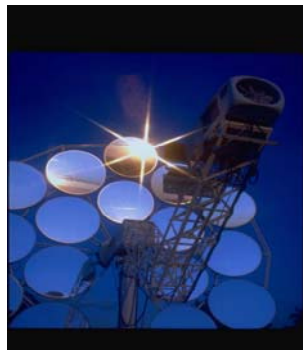
FY04 - Dish system field monitoring



First Two Dish Systems



**SAIC/STM 25kW
Dish/Stirling**



**Boeing/SES 25kW
Dish/Stirling**



★ Other designs will be considered in the RFP



Southwest Solar Opportunity

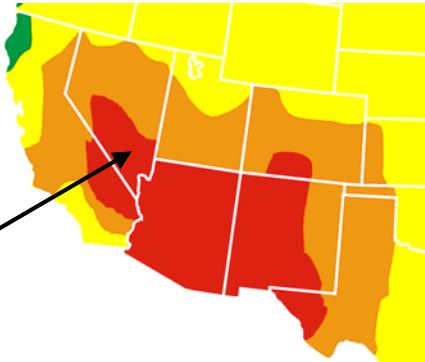
**The Southwest
has an abundant
solar resource**

Goal: 1,000 MW by 2006

Driver: Western energy crisis

Opportunity: recent rise in price of
electricity makes solar an attractive option

Solar from 1% of
the Mojave Desert
would provide
enough annual
energy to meet
California's
expected electric
shortfall



**Southwest has
25% of U.S.
population and
is its fastest
growing region**



Nevada is Leading the Way...

**The U.S. needs domestic
energy supply.**

**The Southwest has huge
quantities of "solar gold"
waiting to be mined.**

**The 1 MW Nevada Dish
Project is the first step to
unlocking this vast but as
yet untapped resource.**



**High visibility dish site at
UNLV off Flamingo Rd.
in Las Vegas, NV**

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